**U.S. Department of the Interior**
**Bureau of Land Management**
**White River Field Office**
**73544 Hwy 64**
**Meeker, CO 81641**

# ENVIRONMENTAL ASSESSMENT

**NUMBER**: CO-110-2006-058-EA

**CASEFILE/PROJECT NUMBER** (optional): COC-059135

**PROJECT NAME**: APD for well # Liberty Unit 396-24A1

**LEGAL DESCRIPTION**: T.3S., R.96W., SWNW sec.24, 6th P.M.

**APPLICANT**: ExxonMobil Corporation

**DESCRIPTION OF PROPOSED ACTION AND ALTERNATIVES**:

***Background/Introduction***: An on site was conducted 10/4/05.

**Proposed Action**: The applicant proposes to drill one vertical well on the proposed well pad. An additional 3,570' of new access road would be constructed (40'ROW total acres=3.4). The well pad size would be approximately 325' x 450' (3.6 ac.) with an adjacent production pad along the access road approximately 80' x 200' (0.037 ac.). Total acres of new surface disturbance on BLM would be approximately 7.8 acres (includes cut/fill slopes). If the well is a producer and the applicant decides to drill an additional eight (8) wells on the proposed well pad, then the well pad would need to be expanded in size to approximately 450'x 530' (5.5 ac). Total acres of new surface disturbance on BLM would then be approximately 9 acres (includes cut/fill slopes). ***No pipeline route has been proposed/submitted at this time.***

The following is ExxonMobil committed mitigation:

- The maximum grade of the access road would not exceed 6%.
- Turnouts would be installed as needed.
- CMPs would be placed as needed.
- Surfacing material would be hauled over existing roads from a source not yet identified.
- No cattleguards would be required for this location.
- The proposed access road would be flagged prior to construction.
- Water would either be piped with surface lines or trucked over access road. Remaining clear water would be pumped or hauled forward from previous wells after surface casing is set.

- Surfacing material would be trucked to the location from an outside source and placed as needed.
- Drill cuttings would be disposed of in the reserve or dry cutting pit and buried with at least 4' of cover. E & P waste would be handled as defined, prescribed or permitted by the COGCC Rules.
- Any drilling mud with greater than 1% diesel net weight would be hauled to a proper disposal site.
- An alternative to hauling would be solidification in the pit with method approved by the Colorado Oil and Gas Conservation Commission (COGCC).
- All mud cuttings will meet these requirements before being buried or removed from the location.
- All cuttings will have all harmful properties of the waste reduced or removed and the mobility of leachate constituents reduced or eliminated.
- The BLM will be contacted prior to testing the cuttings of the first well so that the BLM may witness the testing procedures.
- Trash, waste paper, and other garbage would be contained in a fenced trash cage and hauled to a commercial disposal site.
- Salts that are not used in the drilling fluid would be removed from the location by the supplier.
- Sewage from the trailer houses will be disposed of in a manner meeting the Rio Blanco County Regulations, as under the guidance of Colorado Water Quality Control Commission, Department of Public Health and Environment.
- Portable, self-contained chemical toilets will be provided for human waste disposal. Upon completion and as needed the toilet holding tanks will be pumped and the contents disposed of in an approved sewage disposal facility.
- Chemicals that are not used in the drilling and completion of the well would be removed from the location by the supplier.
- Drilling fluids would be allowed to evaporate in the reserve pit until the pit is dry enough for back filling.
- Water produced during tests would be disposed of in the reserve pit as per Onshore Order #7.
- Oil produced during tests would be stored in test tanks until sold, at which time it would be hauled from the site.
- In the event fluids in the pit do not evaporate in a reasonable time, the fluids would be hauled to a state approved disposal site or would be **mechanically evaporated**.
- The reserve pit would be fenced on three sides with 4 strand barbed wire during drilling and on the fourth side after the rig is released.
- No camps, airstrips, etc. would be constructed.
- All equipment and vehicles will be confined to the access road and well pad.
- Mud pits in the active circulation system would be steel pits. The reserve pit may be lined with an impermeable liner if needed to hold fluid.
- If snow is encountered, the snow would be removed before construction begins or the topsoil is disturbed, and placed downhill of the proposed topsoil stockpile.
- All available topsoil would be stripped on well locations and access roads, prior to construction, and stockpiled for use in reclamation of the site. Topsoil stockpile would

be clearly segregated from any spoil pile and placed where it can be easily retrieved without impact to natural features.

- Upon completion of the operation and disposal of trash and debris as prescribed above, pits would be backfilled and recontoured as soon as practical after they have dried.
- Unneeded disturbed surfaces remaining after completion to the surface production facilities would be shaped to match the surrounding terrain and seeded as specified by the BLM.
- When the well is abandoned, ExxonMobil would rehabilitate the road and location as per BLM specifications.
- Revegetation of the drill pad would comply with BLM specifications.
- Rehabilitation operations would start in a timely manner following the completion of operations, typically the following construction season.
- An archaeological investigation and report will be prepared for the proposed access road and well site by Archaeological-Environmental Research Corporation and submitted to the BLM.
- Completed wells on this pad will continue to produce during drilling operations per Exxon Mobil Simultaneous Operations guidelines.

Approximate date proposed action work would start is 4/10/06.

**No Action Alternative:** No environmental impacts would occur.

**ALTERNATIVES CONSIDERED BUT NOT CARRIED FORWARD**:

**NEED FOR THE ACTION**: To respond to the request by the applicant to exercise lease rights and construct access road and well pad to develop hydrocarbon reserves.

**PLAN CONFORMANCE REVIEW**: The Proposed Action is subject to and has been reviewed for conformance with the following plan (43 CFR 1610.5, BLM 1617.3):

Name of Plan: White River Record of Decision and Approved Resource Management Plan (ROD/RMP).

Date Approved: July 1, 1997

Decision Number/Page: Page 2-5

Decision Language: "Make federal oil and gas resources available for leasing and development in a manner that provides reasonable protection for other resource values."

**AFFECTED ENVIRONMENT / ENVIRONMENTAL CONSEQUENCES / MITIGATION MEASURES**:

**STANDARDS FOR PUBLIC LAND HEALTH**: In January 1997, Colorado Bureau of Land Management (BLM) approved the Standards for Public Land Health. These standards cover

upland soils, riparian systems, plant and animal communities, threatened and endangered species, and water quality. Standards describe conditions needed to sustain public land health and relate to all uses of the public lands. Because a standard exists for these five categories, a finding must be made for each of them in an environmental analysis. These findings are located in specific elements listed below:

## CRITICAL ELEMENTS

### AIR QUALITY

*Affected Environment*: The entire White River Resource area has been classified as either attainment or unclassified for all pollutants, and most of the area has been designated prevention of significant deterioration (PSD) class II. The proposed action is not located within a thirty mile radius of any special designation air sheds or non-attainment areas. The air quality criteria pollutant likely to be most affected by the proposed actions is the level of inhalable particulate matter, specifically particles ten microns or less in diameter ($PM_{10}$) associated with fugitive dust. In addition, slight increases in the following criteria pollutants: carbon monoxide, ozone (secondary pollutant), nitrogen dioxide, and sulfur dioxide may also occur during construction due to the combustion of fossil fuels associated with construction and drilling operations. Also, non-criteria pollutants such as visibility, nitric oxide, air toxics (e.g. benzene) and total suspended particulates (TSP) may also experience slight short term increases as a result of the proposed actions (no national ambient air quality standards have been set for non-criteria pollutants). Unfortunately, no monitoring data is available for the survey area. However, it is apparent that current air quality near the proposed location is good because only one location on the western slope (Grand Junction, CO) is monitoring for criteria pollutants other than $PM_{10.}$ Furthermore, the Colorado Air Pollution Control Division (APCD, 2005) estimates the maximum $PM_{10}$ levels (24-hour average) in rural portions of western Colorado like the Piceance Basin to be near 50 micrograms per cubic meter ($\mu g/m^3$). This estimate is well below the National Ambient Air Quality Standard (NAAQS) for $PM_{10}$ (24-hour average) of 150 $\mu g/m^3$.

*Environmental Consequences of the Proposed Action:* Cumulative impacts detrimental to air quality in the Piceance Creek Basin can be expected as carbon monoxide, ozone (secondary pollutant), nitrogen dioxide, particulate matter, and sulfur dioxide levels are elevated due to increased oil and gas development. Construction equipment producing elemental and organic carbon via fuel combustion combined with surface disturbing activities that leave soils exposed to eolian processes will both increase production of particulate matter ($PM_{10}$) during construction. Elemental and organic carbon existing in the air as $PM_{10}$ can reduce visibility and increase the potential of respiratory health problems to exposed parties. However, following initial construction, suggested mitigation, and successful interim reclamation, criteria pollutant levels should return to near pre-construction levels.

*Environmental Consequences of the No Action Alternative:* No adverse impacts to air quality would occur.

*Mitigation*: The operator will be responsible for complying with all local, state, and federal air quality regulations as well as providing documentation to the BLM that they have done so. To minimize production of fugitive particulate matter (fugitive dust), vehicle speeds must not exceed 15 mph *or* dust plume must not be visible at appropriate designated speeds for road design. In addition, the application of a BLM approved dust suppressant (e.g. water or chemical stabilization methods) will be required during dry periods when dust plumes are visible at speeds less than or equal to 15 mph. Surfacing the roadway with gravels will also help mitigate production of fugitive particulate matter.

To reduce production of fugitive particulate matter originating from well pads and associated stockpiled soils (long term storage) interim reclamation will be required. Interim reclamation will consist of excess stockpiled soils associated with pad construction being pulled back over the portion of the well pad not being utilized for production facilities and access. Portions of the well pad undergoing interim reclamation will be returned to grade (as close as possible), promptly re-seeded, and biodegradable fabrics will be utilize on slopes exceeding 5% (e.g. fill slopes). If interim reclamation is not practical (e.g. completion of drilling operation will require an extended period time (multiple well pads)), stockpiled topsoil will be covered with biodegradable fabrics such as (but not limited to) jute netting and seeded with a BLM approved seed mixture (see vegetation section of this document). Furthermore, soils stockpiled for short durations (e.g. during road/pipeline construction/maintenance) will be wetted during dry periods to reduce production of fugitive particulate matter.

## CULTURAL RESOURCES

*Affected Environment*: The proposed well pad, short new access road and associated well tie pipeline have been inventoried at the Class III (100% pedestrian) level (Pool 2006, Compliance Dated 4/13/2006) with only two isolated finds recorded in the project area.

*Environmental Consequences of the Proposed Action:* Construction of the well pad, access road and well tie pipeline will likely result in the destruction of the two isolated finds, resulting in a slight and virtually negligible loss of data to the regional cultural database.

*Environmental Consequences of the No Action Alternative:* There would be no new impacts to cultural resources under the No Action Alternative.

*Mitigation*: 1. The operator is responsible for informing all persons who are associated with the project operations that they will be subject to prosecution for knowingly disturbing historic or archaeological sites, or for collecting artifacts. If historic or archaeological materials are uncovered during any project or construction activities, the operator is to immediately stop activities in the immediate area of the find that might further disturb such materials, and immediately contact the authorized officer (AO). Within five working days the AO will inform the operator as to:

- whether the materials appear eligible for the National Register of Historic Places
- the mitigation measures the operator will likely have to undertake before the site can be

used (assuming in situ preservation is not necessary)
- a timeframe for the AO to complete an expedited review under 36 CFR 800-11 to confirm, through the State Historic Preservation Officer, that the findings of the AO are correct and that mitigation is appropriate.

If the operator wishes, at any time, to relocate activities to avoid the expense of mitigation and/or the delays associated with this process, the AO will assume responsibility for whatever recordation and stabilization of the exposed materials may be required. Otherwise, the operator will be responsible for mitigation cost. The AO will provide technical and procedural guidelines for the conduct of mitigation. Upon verification from the AO that the required mitigation has been completed, the operator will then be allowed to resume construction.

2. Pursuant to 43 CFR 10.4(g) the holder of this authorization must notify the AO, by telephone, with written confirmation, immediately upon the discovery of human remains, funerary items, sacred objects, or objects of cultural patrimony. Further, pursuant to 43 CFR 10.4(c) and (d), you must stop activities in the vicinity of the discovery and protect it for 30 days or until notified to proceed by the authorized officer.

**INVASIVE, NON-NATIVE SPECIES**

*Affected Environment*: Noxious weeds known to occur in the project area include spotted knapweed (Centaurea maculosa), houndstongue, and mullein. Spotted knapweed occurs along the access road route from the bottom of section 24 to the mid section line of section 24. The invasive annual cheatgrass is present along the proposed access primarily as a result of unrevegetated earthen disturbance associated with road construction and maintenance activity.

*Environmental Consequences of the Proposed Action:* The proposed action will disturb about 10 acres for the access road and location and an unquantified acreage for gas and waterlines to service the well, which if it is not revegetated with desirable species and /or treated with herbicides to eradicate noxious weeds/cheatgrass, will provide safe sites for proliferation of the existing noxious weeds and establishment of new noxious weeds. Noxious weeds could also spread from the project site to surrounding native rangelands resulting in a long term negative impact.

*Environmental Consequences of the No Action Alternative:* There will be no change from the present situation

*Mitigation*: Prior to commencement of access road construction, the flagged road right of way should be spot pretreated (sprayed) to kill any spotted knapweed that is growing within the right of way.

The operator will be required to monitor the project area for a minimum of three years post disturbance and eradicate all noxious and invasive species which occur on site using materials and methods approved in advance by the Authorized Officer.

**MIGRATORY BIRDS**

*Affected Environment*: The proposed well is located on a ridgeline (7250') composed of a fire-induced disclimax mixed shrub community that is in a later successional state characterized by ageing stand of bitterbrush/big sagebrush/serviceberry, intact but declining herbaceous understories, and young pinyon-juniper encroachment.

A number of migratory birds fulfill nesting functions in these mixed shrub communities during the months of May, June, and July. Species associated with these shrublands are typical and widely represented in the Resource Area and region. As pinyon-juniper begins to establish on these sites, the abundance of shrubland obligates (e.g., green-tailed towhee) declines and more generalized woodland species (e.g., chipping sparrow) begin to appear. Those bird populations associated with this Resource Area's mixed shrub communities identified as having higher conservation interest by the Rocky Mountain Bird Observatory/Partners in Flight program (i.e., Brewer's sparrow, green-tailed towhee) are abundant and well distributed in extensive suitable habitats throughout the Resource Area. The young pinyon-juniper encroachment developing on the site has little influence on the composition of migratory birds at this time.
Although the higher ridgeline sites have no open water or wetland areas that support or attract waterfowl use, the development of reserve pits that contain drilling fluids have attracted waterfowl use, at least during the migratory period (i.e., local records: mid-March through late May; mid-October through late November).

*Environmental Consequences of the Proposed Action:* Construction and drilling associated with this pad (i.e., single well) is expected to commence in April 2005 and continue through June. Based on this schedule, the potential to disrupt the nesting activities of migratory birds would be low since construction (about 10 acres cleared) and drilling activity (including use of access road) would take place prior to the arrival of migrants. Breeding efforts would adjust in response to ongoing activities and would be commensurate with species- and individual-specific tolerance to disturbance.

It recent incidents, migratory waterfowl (i.e., teal and gadwall) have contacted drilling or frac fluids (i.e., stored in reserve pits) during or after completion operations and are suffering mortality in violation of the Migratory Bird Treaty Act. The extent and nature of the problem is being investigated by the federal agencies. Until the vectors of mortality are better understood, management measures must be conservative and relegated to preventing bird contact with frac and drilling fluids that may pose a problem.

*Environmental Consequences of the No Action Alternative:* There would be no action authorized that would have potential to disrupt the breeding activities of migratory birds. Alternate actions would have similar or more substantive consequences as those discussed under the proposed action.

*Mitigation*: The operator shall prevent use by migratory birds of reserve pits that store or are expected to store fluids which may pose a risk to such birds (e.g., migratory waterfowl, shorebirds, wading birds and raptors) during completion and after completion activities have

ceased. Methods may include netting, the use of bird-balls, or other alternative methods that effectively prevent use and that meet BLM approval. It will be the responsibility of the operator to notify the BLM of the method that will be used to prevent use two weeks prior to when completion activities are expected to begin. The BLM approved method will be applied within 24 hours after completion activities have begun. All lethal and non-lethal events that involve migratory birds will be reported to the Petroleum Engineer Technician immediately.

**WASTES, HAZARDOUS OR SOLID**

*Affected Environment*: There are no known hazardous or other solid wastes on the subject lands. No hazardous materials are known to have been used, stored or disposed of at sites included in the project area.

*Environmental Consequences of the Proposed Action:* No listed or extremely hazardous materials in excess of threshold quantities are proposed for use in this project. While commercial preparations of fuels and lubricants proposed for use may contain some hazardous constituents, they would be stored, used and transported in a manner consistent with applicable laws, and the generation of hazardous wastes would not be anticipated. Solid wastes would be properly disposed of.

*Environmental Consequences of the No Action Alternative:* No hazardous or other solid wastes would be generated under the no-action alternative.

*Mitigation*: The applicant shall be required to collect and properly dispose of any solid wastes generated by the proposed actions.

**WATER QUALITY, SURFACE AND GROUND** (includes a finding on Standard 5)

*Affected Environment*: Surface Water: The proposed project area is located on a ridge between two unnamed ephemeral tributaries to Piceance Creek above its confluence with Stewart Gulch. Piceance Creek is a perennial tributary to the White River which is a tributary to the Green River (tributary to the Colorado River). The proposed well pad and access road are situated in stream segment 15 of the White River Basin. A review of the Colorado's 1989 Nonpoint Source Assessment Report (plus updates), the 305(b) report, the 303(d) list, and the White River ROD/RMP was done to see if any water quality concerns have been identified. A gaging station was operated by USGS on Piceance Creek near the confluence with Stewart Gulch. Data from that station (based on 25 years of record) indicate a seasonal variation of flow. High flows generally occurred in May and base flow conditions occurred in September through February. Sediment data collected at that station ranged from 6 milligrams per liter (mg/l) to 20,300 mg/l. During base flow conditions, the sediment levels were generally below 150 mg/l. Concentrations during high flows generally ranged from 5,000 to 7,500 mg/l. Given the ephemeral state and size of the affected drainages in the project area, concentrations of suspended sediment are anticipated to be far less than those recorded downstream in Piceance

Creek. It should be noted that the White River from Piceance Creek to Douglas Creek has been listed on the states monitoring and evaluation list (M&E list) for sediment impairments.

Stream segment 15 of the White River Basin is defined as the mainstem of Piceance Creek from the Emily Oldland diversion dam to the confluence with the White River. Segment 15 has not been designated use-protected. An intermediate level of water quality protection applies to waters that have not been designated outstanding waters or use-protected waters. For these waters, no degradation is allowed unless deemed appropriate following an antidegradation review. The state has classified segment 15 as being beneficial for the following uses: Warm aquatic life 2, Recreation 1b, and Agriculture.

Access to location 396-24A is the Sprague Gulch Road (BLM #1005), on which EnCana Oil & Gas (USA) Inc. was recently granted a right-of-way that authorized use of the road and road improvements for traffic associated with natural gas development. The impacts of that right-of-way authorization were treated in CO-110-2005-161-EA (July 26, 2005). A temporary improved low water crossing with a "hardened" creek bottom is currently being used at the Piceance Creek crossing of the Sprague Gulch Road. Language in CO-110-2005-161-EA states that this temporary crossing will allow access to no more than 20 total pad locations.

Ground Water: Surface geologic formation at the proposed location is Tertiary in age (Uinta Formation) and consists primarily of sandstone and siltstone. The Uinta Formation is the principle geologic formation of the Upper Piceance Basin Aquifer. Two perennial BLM springs (171-14, 171-15) have been identified less than 1000 feet to the northwest of the proposed pad location. The following figure (Figure 1) shows the proximity of affected BLM springs to location 396-24A and the accompanying table (table 1) lists springs which were identified in the WRFO Water Atlas.

Figure 1:

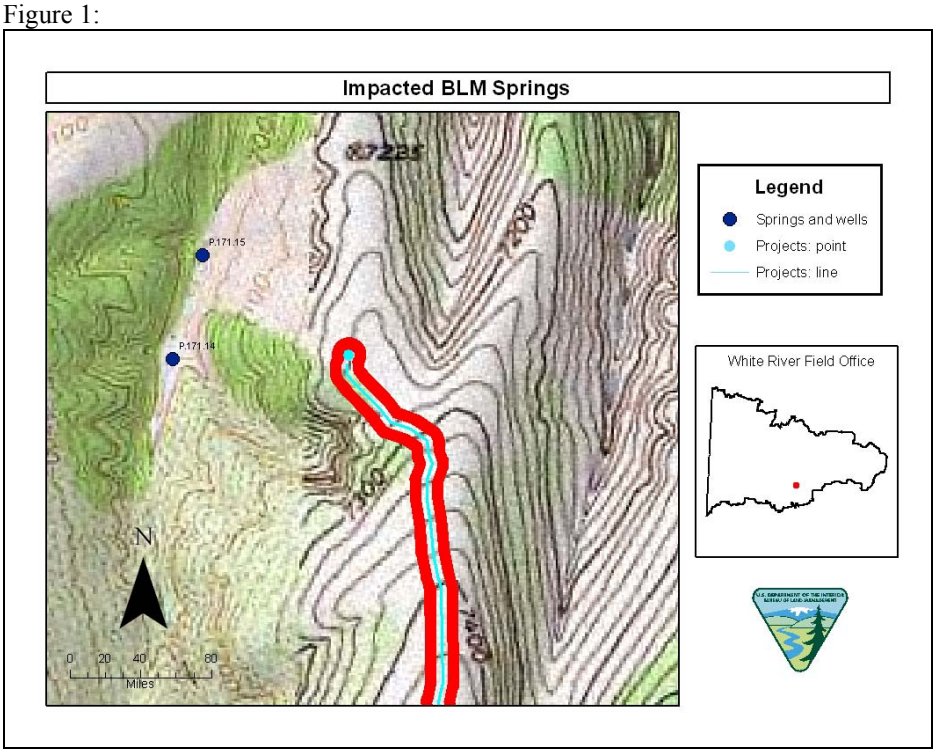

Table 1:

| Map Code | ¼ Section | Section | Township | Range | Water Right | SC | pH | Q (gpm) | Date |
|---|---|---|---|---|---|---|---|---|---|
| 171-14 | SENE | 23 | 3S | 96W | 96CW37 | 1542 | 7.9 | 0.41 | 26-Sep-83 |
| 171-15 | NENE | 23 | 3S | 96W | 96CW37 | 1839 | 8.1 | 2.37 | 26-Sep-83 |

The BLM has obtained water rights on all of the potentially impacted perennial springs.

A review of the US Geological Survey Ground Water Atlas of the United States (Topper et al., 2003) was done to assess ground water resources at the location of the proposed action. The proposed action is located in the Piceance Creek structural basin. Primary hydrogeologic units within the Piceance Basin are listed in the following table (Table 2).

Table 2:

| Summary of Hydrogeologic Units | | | | | | |
|---|---|---|---|---|---|---|
| **Hydrogeologic Unit** | **Stratigraphic Unit** | **Physical Description** | **Thickness** | **Hydraulic Conductivity** | **Yield** | **TDS** |
| | | | **(ft)** | **(ft/day)** | **(gpm)** | **mg/L** |
| **Upper Piceance Basin aquifer** | Uinta Formation | sandstone, fractured siltstone, fractured marlstone | 0 – 1,400 | <0.2 to >1.6 | 1- 900 | 500-1,000 |
| Mahogany confining unit | Green River Formation | dolomitic marlstone and shale | 500-1,800 | <0.01 | <25 | NL |
| **Lower Piceance Basin aquifer** | Green River Formation | shale, fine-grained sandstone, fractured marlstone | 0 – 1,870 | <0.1 to >1.2 | 1-1,000 | 1,000-10,000 |
| Basal confining unit | Green River Formation, Wasatch Formation | claystone, siltstone, clay rich oil shale, marlstone, channel sandstone | 0-6,800 | <0.01 | <10-100 | NL |
| **Fort Union aquifer** | Fort Union Formation | Coarse-grained sandstone | Very thin | NL | NL | NL |
| **Mesaverde aquifer** | Mesaverde Group | sandstone interbedded shale and coal | Averages 3,000 | 0.0001-1.0 | NL | NL |
| Mancos confining unit | Mancos Shale | mostly shale but Frontier Sandstone may be local aquifer | >7,000 | NL | NL | NL |
| Abbreviations: ft = feet, approx = approximate, avg = average, gpm = gallons per minute, mg = milligrams, L = liters, and NL = not listed. | | | | | | |

Table information from Topper et al. (2003).

The Piceance Creek drainage basins upper and lower aquifers are separated by the semi-confining Mahogany Zone. Information presented in Topper et al. (2003) indicates the following approximate depths to potentiometric surfaces (elevation at which water level would have stood in tightly cased wells, 1985) within hydrogeologic units: upper Piceance basin aquifer 550 feet, lower Piceance basin aquifer 350 feet, and Mesaverde aquifer 250 feet (based on a surface elevation of 7,250 feet). Water well data from the Colorado Division of Water Resources (Topper et al., 2003) indicated that in central Rio Blanco County water wells are uncommon.

Based on existing water well data near the project area, total concentration of dissolved constituents in the upper and lower aquifers is generally lower than 1000 milligrams per liter.

*Environmental Consequences of the Proposed Action:* Surface Water: New surface disturbing activities associated with the proposed actions will increased soil exposure to erosional processes. New surface disturbance will destroy existing vegetation and increase compaction. Increased compaction combined with reduced vegetation will further decrease infiltration rates and elevate erosive potential due to runoff (overland flows) and raindrop impact during storm events. The onsite evaluation (10/5/05) reviled the existing two-track to be used as part of the access was in extremely poor condition, had recently channeling surface water, and was strongly contributing to hill-slope soil erosion. Improper road design and inadequate drainage relief structures will further contribute to hill slope soil erosion.

Given the moderately rapid permeability rates of the affected soils, leaks or spills of environmentally unfriendly substances are likely to be carried down gradient in local ground water (perched aquifer). Contaminants being transported by local ground water may discharge into surface waters of ephemeral tributaries and BLM springs (171-14, 171-15) during wet periods, be transported down gradient and potentially deteriorate surface water quality in lower portions of the watershed. In addition, mechanical means of produced water evaporation may result in overspray which would likely result in increased salt deposits (notably sodium and chlorides). Salt deposition resulting from overspray may adversely impact the health of surrounding vegetation reducing effective ground cover and increasing the potential for soil erosion. In addition, salts deposited from overspray could be carried down gradient to surface waters of the Colorado River system deteriorating water quality.

Ground Water: In the event of any leaks or spills, local ground water may be adversely impacted as runoff could carry contaminates down gradient to alluvial aquifers such as the Piceance Creek alluvium as well as BLM perennial springs 171-14, and 171-15 which are situated hydrologically down gradient from the proposed actions . Potential for ground water contamination increases if fractures in confining units are formed. Hydraulic conductivity increases exponentially along fracture zones resulting in rapid transport of fluids/contaminants in these areas. The upper and lower Piceance Basin aquifers have differing water qualities, mixing will degrade water quality in the upper aquifer which is generally of better quality. Storage or surface disposal methods (e.g. evaporation ponds) for produced water would also elevate potential for contaminating ground water of the Upper Piceance Basin Aquifer, Piceance Creek Alluvial Aquifer, and nearby perennial springs.

*Environmental Consequences of the No Action Alternative:* No adverse impacts to surface or ground water quality would occur.

*Mitigation*: The operator will be responsible for complying with all local, state, and federal water quality regulations (such as but not limited to Phase I Storm Water Permit, and Industrial Wastewater/Produced Water Permits). The operator will also be required to provide the BLM with documentation that all required permits were obtained.

Surface Water: All surface disturbing activities will strictly adhere to "Gold Book" fourth edition surface operating standards for oil and gas exploration and development (copies of the "Gold Book" fourth edition can be obtained at the WRFO). Oil and gas development activities require a stormwater discharge permit from the Colorado Department of Public Health and Environment, Water Quality Control Division, for construction associated with well pads, pipelines, roads and other facilities. As a condition of the permit, a Stormwater Management Plan (SWMP) would be developed showing how Best Management Practices (BMPs) are to be used to control runoff and sediment transport. The applicant is required to have a copy of the SWMP on file with the Meeker Field Office and to implement the BMPs in that plan as on-site conditions warrant.

The White River Record of Decision and Approved Resource Management Plan (July, 1997) includes a list of standard Conditions of Approval to be applied to All Surface Disturbing Activities (COAs 1-12) and to Road Construction and Maintenance (COAs 13-62). The applicant is required to be familiar with those standard COAs and to implement them as on-site conditions warrant. Furthermore, to mitigate additional soil erosion at the well pad, interim reclamation will be required as outlined in the Air Quality mitigation section above.

Due to the potential cumulative impacts resulting from future development on the Roan Plateau (more than 20 well pads), construction of a prefabricated bridge (designed to withstand a 50 year flood event) with concrete abutments (nearly identical to the structure built over Piceance Creek on BLM # 1002) will be required for future development when the 20 well pad threshold for the existing low water crossing on the Sprague Gulch Road is reached. The use of a bridge will mitigate potential contamination to surface waters due to leaks or spills as well as mitigate severe deterioration of the stream bank/channel at the Piceance Creek crossing. Bridge construction will take place only during low flow periods in attempts to minimize suspended sediment loads in Piceance Creek. It will be the responsibility of Exxon Mobil Corporation to come to an agreement with EnCana Oil & Gas (USA) Inc. (and any other companies using this access) to fund the construction of the required prefabricated bridge.

If mechanical evaporation is necessary to dispose of pit fluids, the operator will be required to conduct soil samples prior to, during after the evaporation process to evaluate potential increases salt concentrations in soils. In addition, vegetation will be monitored on a daily basis within a 200 foot radius of the evaporation system to assess potential impacts overspray may have on vegetation. In the event that overspray is adversely impacting vegetation and increasing soil salt concentrations, all mechanical means of evaporation will be shut down and the operator will consult with the BLM to ensure adequate cleanup. Furthermore, all soil and vegetative data will be provided to the BLM in a timely manner.

Ground Water: Shallow aquifers shall be protected from hydrofracturing and the production of oil and gas by installation and cementing of surface and intermediate casing. Any groundwater produced from the Fort Union or Mesaverde Formations will be hauled off and disposed of due to poor water quality and therefore preventing adverse impacts to valuable surface and ground water resources. Environmentally unfriendly substances (e.g. diesel) must not be allowed to contact soils. The use of spill-guards (or equivalent spill prevention equipment) under and around pumping equipment is suggested to intercept such contaminants prior to infiltrating soils and contaminating ground water. Furthermore, all pits shall be lined and all wastes associated

with construction and drilling will be properly treated and disposed of. To assess water quality impacts resulting from energy development, the BLM will monitor water quality and flow rates in perennial springs 171-14 and 171-15 before and after drilling.

*Finding on the Public Land Health Standard for water quality*: Stream segment 15 of the White River Basin currently meet water quality standards set by the state. Many of the upper tributaries which are ephemeral and flow in direct response to storm events do not meet the standards during periods of flow. Following suggested mitigation measures, water quality in the affected stream segment should continue to meet standards.

**CRITICAL ELEMENTS NOT PRESENT OR NOT AFFECTED**:

No ACEC's, flood plains, prime and unique farmlands, or Wild and Scenic Rivers, threatened, endangered or sensitive plants exist within the area affected by the proposed action. For threatened, endangered and sensitive plant species Public Land Health Standard is not applicable since neither the proposed nor the no-action alternative would have any influence on populations of, or habitats potentially occupied by, special status plants. There are also no Native American religious or environmental justice concerns associated with the proposed action.

**NON-CRITICAL ELEMENTS**

The following elements **must** be addressed due to the involvement of Standards for Public Land Health:

**SOILS** (includes a finding on Standard 1)

*Affected Environment*: The following data is a product of an order III soil survey conducted by the Natural Resources Conservation Service (NRCS) in Rio Blanco County, CO. The following table (Table 3) highlights important soil characteristics. A complete summary of this information can be found at the White River Field Office.

Table 3:

| Soil Number | Soil Name | Slope | Affected acres (30 m) radius | Ecological site | Salinity (Mmohs /cm) | Run Off | Erosion Potential | Depth to Bedrock (inches) |
|---|---|---|---|---|---|---|---|---|
| 15 | Castner channery loam | 5-50% | 0.57 | Pinyon-Juniper woodlands | <2 | Medium to rapid | Moderate to very high | 10-20 |
| 70 | Redcreek -Rentsac complex | 5-30% | 16.57 | PJ woodlands/PJ woodlands | <2 | Very high | Moderate to high | 10-20 |
| 73 | Rentsac channery loam | 5-50% | 0.91 | Pinyon-Juniper woodlands | <2 | Rapid | Moderate to very high | 10-20 |

Within a 30 meter radius 5.52 acres of control surface use (CSU-1) "fragile soils" have been mapped along the proposed access road and pad location. However, following an onsite evaluation (10/5/05) and observation of a topographic map, it was concluded that no surface

disturbing activities will occur on slopes greater than 35 percent. Thus, controlled surface use stipulations will not apply.

*15-Castner channery loam* (5 to 50 percent slopes) is a shallow, well drained soil located on mountainsides, ridge tops, and uplands. It formed in residuum derived from sandstone. The native vegetation is mainly pinyon and juniper and an understory of brush and grasses. Elevation is 6,900 to 7,800 feet. The average annual precipitation is 15 to 18 inches, the average annual air temperature is 39 to 42 degrees F, and the average frost-free period is 80 to 105 days. Typically, the upper part of the surface layer is dark grayish brown channery loam about 7 inches thick. The lower part is dark grayish brown very channery loam about 4 inches thick. The underlying material is grayish brown, calcareous very channery loam about 6 inches thick. Sandstone is at a depth of 17 inches. Depth to sandstone ranges from 10 to 20 inches. Permeability of the Castner soil is moderate. Available water capacity is very low. Effective rooting depth is 10 to 20 inches. Runoff is medium to rapid, and the hazard of water erosion is moderate to very high.

*70-Redcreek-Rentsac complex* (5 to 30 percent slopes) is situated on mountainsides and ridges. The native vegetation is mainly pinyon and juniper trees with an understory of shrubs and grasses. Elevation is 6,000 to 7,400 feet. The average annual precipitation is 14 to 18 inches, the average annual air temperature is 42 to 45 degrees F, and the average frost-free period is 85 to 105 days. This unit is 60 percent Redcreek sandy loam and 30 percent Rentsac channery loam. The Redcreek soil is shallow and well drained. It formed in residual and eolian material derived dominantly from sandstone. Typically, the surface layer is brown sandy loam about 4 inches thick. The next layer is brown, calcareous sandy loam about 7 inches thick. The underlying material is very pale brown, calcareous channery loam 5 inches thick. Hard sandstone is at a depth of 16 inches. Depth to hard sandstone or hard shale ranges from 10 to 20 inches. Permeability of the Redcreek soil is moderately rapid. Available water capacity is very low. Effective rooting depth is 10 to 20 inches. Runoff is medium, and the hazard of water erosion is moderate to high.

The Rentsac soil is shallow and well drained. It formed in residuum derived dominantly from sandstone. Typically, the upper part of the surface layer is grayish brown channery loam about 5 inches thick. The next layer is brown very channery loam about 4 inches thick. The underlying material is very pale brown extremely flaggy loam 7 inches thick. Hard sandstone is at a depth of 16 inches. Depth to hard sandstone or hard shale ranges from 10 to 20 inches. Permeability of the Rentsac soil is moderately rapid. Available water capacity is very low. Effective rooting depth is 10 to 20 inches. Runoff is medium, and the hazard of water erosion is moderate to high.

*73-Rentsac channery loam* (5 to 50 percent slopes) is a shallow, well drained soil found on ridges, foothills, and side slopes. It formed in residuum derived dominantly from calcareous sandstone. The native vegetation is mainly pinyon, juniper, brush, and grasses. Elevation is 6,000 to 7,600 feet. The average annual precipitation is 14 to 18 inches, the average annual air temperature is 42 to 45 degrees F, and the average frost-free period is 80 to 105 days. Typically, the surface layer is grayish brown channery loam about 5 inches thick. The next layer is very channery loam about 4 inches thick. The underlying material is extremely flaggy light loam 7 inches thick. Hard sandstone is at a depth of 16 inches. Depth to sandstone ranges from 10 to 20 inches. Permeability of this Rentsac soil is moderately rapid. Available water capacity is very

low. Effective rooting depth is 10 to 20 inches. Runoff is rapid, and the hazard of water erosion is moderate to very high.

*Environmental Consequences of the Proposed Action:* The well pad and access road are situated on soils which have been identified as having moderate to very high erosive potential. Improper drainage and soil stabilization techniques will increase potential for overland flows accelerating erosion rates leading to soil piping, head cutting and gully formation. Removal of limited ground cover will also expose soils to erosional processes. Heavy traffic will increase soil compaction decreasing infiltration rates which in turn will also increase potential for erosive overland flows.

Leaks or spills of environmentally unfriendly substances on or near the pad may contaminate soils hindering revegetation efforts. Soils unable to support a healthy plant community will be less cohesive (due to lack of root structure) and more vulnerable to erosional processes.

*Environmental Consequences of the No Action Alternative:* None

*Mitigation*: Comply with "Gold Book" fourth edition surface operating standards for constructing well pad, pipeline and access road (copies of the "Gold Book" fourth edition can be obtained at the WRFO). Interim reclamation will be required as addressed in the Air and Water Quality portions of this document. To mitigate contamination of soils and local ground water, environmentally unfriendly substances (e.g. diesel) must not be allowed to contact soils. The use of impermeable matting under equipment (tanks, pumps, or other equipment used in handling hazardous liquids) is suggested to intercept such contaminants prior to contacting soils. Complete reclamation will follow abandonment of well pad. Access road and well pad will be recontoured and 100% of disturbed surfaces will be revegetated with the suggested seed mixture as outlined in the vegetation section of this document.

*Finding on the Public Land Health Standard for upland soils*: Currently, soils in the vicinity of the proposed action exhibit infiltration and permeability rates that are appropriate to soil type, landform, climate, and geologic processes. The proposed actions will cause decreases in both infiltration and permeability rates due to soil compaction and loss of vegetal cover. However, with proper mitigation soils health standards will continue to be met.

**VEGETATION** (includes a finding on Standard 3)

*Affected Environment*: The proposed action occurs in a mixed mountain shrub community. Mountain big sagebrush and Utah serviceberry are co-dominants. Pinyon is invading this, a brushy loam ecological site and the site is in stage one of the invasion process. The herbaceous understory is comprised of a diverse variety of perennial grasses and forbs.

*Environmental Consequences of the Proposed Action:* The proposed action will create about (20) twenty acres of new earthen disturbance. The principal impact to vegetation will be complete removal of vegetation on the well site, access road and pipeline, and the earthen disturbance associated with it. In terms of plant community composition, structure and function,

the principal negative impact over the long term would occur if cheatgrass or noxious weeds are allowed to establish and proliferate on the disturbed areas resulting from pad, pipeline, and access road construction.

*Environmental Consequences of the No Action Alternative:* There will be no change in the present situation.

*Mitigation*: Promptly revegetate all disturbed areas not necessary for production including pad and access road cut and fill slopes with Native Seed mix #2. Seed mixture rates are Pure Live Seed (PLS) pounds per acre. Drill seeding is the preferred method of application. If seed is broadcast, the application rate will be doubled.

| NATIVE SEED MIX #2 | | |
|---|---|---|
| Western wheatgrass (Rosanna) | 2 | Deep Loam, Loamy 10"-14", |
| Indian ricegrass (Nezpar) | 1 | Loamy Breaks, Loamy Slopes, |
| Bluebunch wheatgrass (Whitmar) | 2 | Rolling Loam, Valley Bench |
| Thickspike wheatgrass (Critana) | 2 | |
| Green needlegrass (Lodorm) | 1 | |
| Globemallow | 0.5 | |

*Finding on the Public Land Health Standard for plant and animal communities* (partial, see also Wildlife, Aquatic and Wildlife, Terrestrial)*:* Vegetation in the project area currently meets the Standard on a watershed basis and is expected to continue to meet the Standard in the future following implementation of the proposed action.

**WILDLIFE, AQUATIC** (includes a finding on Standard 3)

*Affected Environment*: Piceance Creek, the aquatic habitat nearest the proposed action, is separated from the proposed action by about 1.6 miles of ephemeral channel. The nearest BLM-administered reach is about 20 miles downstream of this point. Stream function and morphology on intervening portions of Piceance Creek are heavily modified by spring and winter grazing and summer-long irrigation practices, but the stream persists in supporting small populations of leopard frog, speckled dace, and flannelmouth sucker.

*Environmental Consequences of the Proposed Action:* This pad is situated on the crest of a ridge separated from the nearest aquatic system by a minimum 1.6 miles of ephemeral channel. Pad and road construction would have no direct impact on aquatic habitats. With the application of BMPs associated with soil erosion there is no reasonable likelihood that fugitive sediments would have any influence on the function or condition of the Piceance Creek channel or its associated aquatic values.

*Environmental Consequences of the No Action Alternative:* There would be no action authorized that would have any direct or indirect influence on downstream aquatic habitat.

*Mitigation*: None.

*Finding on the Public Land Health Standard for plant and animal communities* (partial, see also Vegetation and Wildlife, Terrestrial): Downstream portions of Piceance Creek are private with the nearest BLM-administered reach about 20 miles downstream. Neither the proposed or no-action alternative would any effective influence on the function or condition of the Piceance Creek channel, its aquatic habitat values, or its land health status.

**WILDLIFE, TERRESTRIAL** (includes a finding on Standard 3)

*Affected Environment*: The project area is encompassed by big game (deer and elk) general winter range (September through May), which at these elevations, are used only sparingly during the late winter months (January-March). The site is comprised of a mixed shrub community (bitterbrush, big sagebrush, serviceberry, snowberry) with generally well developed density and composition of herbaceous ground cover, but is undergoing considerable encroachment with young pinyon and juniper. These shrub disclimax communities are at a seral stage appropriate for carrying fire. The project proposal requires about 1500 feet of new access, with another 2100 feet of significantly upgraded two-track.

While raptors may opportunistically forage throughout the area, this project area's pinyon-juniper encroached mixed shrub series does not provide adequate nesting substrate for woodland raptors. Non-game wildlife using this area are typical and widely distributed in extensive like habitats across the Resource Area and northwest Colorado; there are no narrowly endemic or highly specialized species known to inhabit those lands potentially influenced by this action.

*Environmental Consequences of the Proposed Action:* Big game habitat disuse and elevated energy demands attending road proliferation received prominent attention in the White River ROD/RMP. Access to this location would require about 0.7 mile of new or substantially upgraded access that represents a substantive extension into a previously undeveloped area. Although efforts to reduce effective road density on this singular project (e.g., gating) would not yield meaningful benefit, as a means of reducing long-term impacts to the utility of local deer and elk winter ranges and meeting road density objectives established in the White River ROD/RMP (i.e., road densities of 3 miles/square mile on big game ranges, White River ROD/RMP, page 2-29), any extension of impacts associated with vehicular traffic and road density from this location should be countered with a gating requirement to strictly and effectively limit vehicular traffic to that associated with well development and maintenance only.

During the on-site inspection, the proposed access road was shifted as far as practical to the western edge of the ridgeline. In doing so, the road was more readily predisposed for effective gating and the access/presumed pipeline corridor would interfere as little as possible with fuel continuity across the ridgeline in the event of a wildfire or prescribed burn. Periodic burning of these mixed shrub stands is considered a normal ecological process that helps retain landscape character and function.

With efforts to incorporate interim reclamation techniques, long term occupation of these lands and the reduction in the herbaceous and woody forage base for big game (about 10 acres) would

be discountable at the landscape level. Similarly, the loss of forage and cover for non-game animals would be negligible.

*Environmental Consequences of the No Action Alternative:* No immediate action would be authorized that would have potential to adversely modify terrestrial wildlife habitats or be capable of disrupting animal behavior within the project area.

*Mitigation*: --The use of interim reclamation techniques will be used to the extent practicable on this pad such that: 1) all available topsoil material would be used to rehabilitate recontoured cut and fill slopes and areas outside the anchors (maintaining the viability of the soils for final reclamation), 2) production facilities are located to maximize the extent of surface disturbance available for recontouring and reclamation after completion operations and through the productive life of the well (e.g., where access road enters pad), and 3) disturbed areas are recontoured, revegetated, and, if necessary, effectively fenced to control livestock use once well completion activities have been finalized (this includes cut and fill slopes of roads and trial application on the roadbeds themselves).

--As a means of reducing long-term impacts to the utility of local deer and elk winter ranges and meeting road density objectives established in the White River ROD/RMP (i.e., road densities of 3 miles/square mile on big game ranges, White River ROD/RMP, page 2-29), any extension of impacts associated with vehicular traffic and road density from this location should be countered with a gating requirement to strictly and effectively limit year-round vehicular traffic to that associated with well development and maintenance and BLM administration only.

*Finding on the Public Land Health Standard for plant and animal communities* (partial, see also Vegetation and Wildlife, Aquatic): The project area presently meets the public land health standards for terrestrial animal communities. The proposed action and no-action alternatives would have negligible short and long term influence on the utility or function of big game, raptor, or nongame habitats in the vicinity of these sites. Although pads and access associated with the proposed action cannot be considered as meeting the definition of the land health standard, the overall shrubland communities comprising this landscape retain sufficient character to support viable populations of resident game and nongame species. Thus, in an overall context, lands affected by the no-action or proposed action would continue to meet the land health standard for terrestrial animals.

**OTHER NON-CRITICAL ELEMENTS:** For the following elements, only those brought forward for analysis will be addressed further.

| Non-Critical Element | NA or Not Present | Applicable or Present, No Impact | Applicable & Present and Brought Forward for Analysis |
|---|---|---|---|
| Access and Transportation | | | X |
| Cadastral Survey | X | | |
| Fire Management | | | X |
| Forest Management | | | X |
| Geology and Minerals | | | X |

| Non-Critical Element | NA or Not Present | Applicable or Present, No Impact | Applicable & Present and Brought Forward for Analysis |
|---|---|---|---|
| Hydrology/Water Rights | | | X |
| Law Enforcement | | X | |
| Noise | | X | |
| Paleontology | | | X |
| Rangeland Management | | | X |
| Realty Authorizations | | | X |
| Recreation | | | X |
| Socio-Economics | | X | |
| Visual Resources | | | X |
| Wild Horses | X | | |

**ACCESS AND TRANSPORTATION**

*Affected Environment*: BLM road 1015 will be utilized to access the proposed action. Portions of BLM road 1015 have been upgraded to an aggregate surface with the exception of portions of road crossing private lands.

*Environmental Consequences of the Proposed Action:* With an additional increase in traffic due to this and other gas exploration activity an increase in traffic accidents is likely in addition to road surface damage due to volume and weight of vehicles.

*Environmental Consequences of the No Action Alternative:* None.

*Mitigation*: None

**FIRE MANAGEMENT**

*Affected Environment*: The action proposed occurs within the D5 Cathedral/Roan Plateau fire management polygon, an area that has minimal constraints on the use of wildfires to achieve public land health objectives. This fire management polygon is an area where wildland fire is desired, and there are few constraints for it use.

The proposed 396-24A1 well location involves approximately 0.49 miles of road and pipeline construction and/or road improvement and about 3.64 acres of drill pad clearing for an approximate total of 6 acres of disturbance in pinyon/juniper stands.

The National Fire Plan calls for "firefighter and public safety" to be the highest priority for all fire management activities. In the pinion, juniper, and brush types common on the White River Resource Area, roads and other man-made openings are commonly used as fuel breaks or barriers to control the spread of both wildland and prescribed fires. By reducing the activity fuels created from this proposal, future fire management efforts in this area should be safer for those involved and more effective.

*Environmental Consequences of the Proposed Action:* Constructing the roads, pipelines and well pads will not change the management of fire in the D5 polygon. The proposed action will require the removal of a substantial amount of vegetation, approximately 28 tons/acre at the well pad location and 10 tons/acre along the access road. Due to the existing tree cover of pinion and juniper, there will be a need for the operator to clear some of these trees. If not adequately treated, these trees will result in elevated hazardous fuels conditions and remain on-site for many years. These accumulations of dead material are very receptive to fire brands and spotting from wind driven fires and can greatly accelerate the rate of spread of the fire front. The roads associated with this project may be used by the general public for a variety of uses, including access for fire wood gathering, hunting and other dispersed recreational activities. Increased public use of an area will nearly always result in an increased potential for man-caused wildland fires. If not treated the slash and woody debris will create an elevated hazardous dead fuel loading which could pose significant control problems in the event of a wildfire/ wildland fire use event. Additionally there would be greater threat to the public, Exxon/contracted personnel, and fire management personnel.

Development of the oil and gas facilities with appropriate mitigation would not be expected to affect BLM's ability to use naturally occurring wildfires to achieve resource management and public land health objectives for the plant communities in the general area.

*Environmental Consequences of the No Action Alternative:*

*Mitigation*: The operator has two options for treatment of slash from this project. A hydro-ax or other mulching type machine could be used to remove the trees. The machines are capable of shredding trees up to 12" in diameter and 15' tall as well as mowing brush like a conventional brush beater. It generally leaves small branches and pieces of wood from pencil size up to bowling ball size. The mulch is evenly scattered across the surface and effectively breaks down the woody fuel thereby eliminating any hazardous fuel load adjacent to the new road and well pad. The other option would be to cut trees and have them removed for firewood, posts, or other products. The branches and tops should be lopped and scattered to a depth of 24 inches or less. If the boles of the trees are left for collection by the general public, they should be stacked in small manageable piles along the roadside or pad to facilitate removal. For material brought back onto the pipeline r-o-w the material should be evenly scattered, so as to not create jackpots, and the material should not exceed 5 tons /acre.

**FOREST MANAGEMENT**

*Affected Environment*: Woodland resources associated with the proposed project are young pinyon/juniper encroaching a mountain browse community. The trees are less that 50 years old and provide little in the way of material for local consumption. This area is non-commercial and not subject to the harvest limits on commercial woodlands prescribed in the White River Resource Area, Resource Management Plan.

*Environmental Consequences of the Proposed Action:* On the access road and well pad all trees would be removed. The limited quantity of material involved would not require

additional stipulations or charges for wood products. No increases in disease or insects are expected to result from the removal of the trees. Following reclamation of the well pad and access road pinyon and juniper are expected to colonize the site and return to a pre-disturbance condition in approximately 50 years.

*Environmental Consequences of the No Action Alternative:* There would be no impacts.

*Mitigation*: Concur with mitigation proposed in fire management.

## GEOLOGY AND MINERALS

*Affected Environment*: The surface geologic formation of the well location is Uinta and ExxonMobil's targeted zone is in the Mesaverde. During drilling potential water, oil shale, sodium, and gas zones will be encountered from surface to the targeted zone. Aquifers that will be encountered during drilling are the Perched in the Uinta, the A-groove, B-groove and the Dissolution Surface in the Green River formation. These aquifer zones along with potions of the Wasatch formation are known for difficulties in drilling and cementing. Oil shale and sodium resources are located in the Green River formation. This area is identified in the ROD/RMP as available for underground oil shale leasing and development. The bottom hole location is located on Federal oil and Gas Lease COC-59135

*Environmental Consequences of the Proposed Action:* The cementing procedure of the proposed actions isolates the formations and will prevent the migration of gas, water, and oil between formations. This includes oil shale and coal zones. However, conventional recovery of the coals is not considered feasible at the depths that are encountered in the well. Development of this well will deplete the natural gas resources in the targeted formation and may affect the future development of underground mining of the oil shale in and around the existing well.

*Environmental Consequences of the No Action Alternative:* The natural gas resources in the targeted zone would not be recovered at this time.

*Mitigation*: None

## HYDROLOGY AND WATER RIGHTS

*Affected Environment*: See water quality portion of document.

*Environmental Consequences of the Proposed Action:* See water quality portion of document.

*Environmental Consequences of the No Action Alternative:* See water quality portion of document.

*Mitigation*: See water quality portion of document.

## PALEONTOLOGY

*Affected Environment*: The proposed well pad location, access road and well tie pipeline are in an area generally mapped as the Uinta Formation which the BLM has classified as a Condition I formation meaning it is known to produce scientifically important fossil resources.

*Environmental Consequences of the Proposed Action:* If it becomes necessary to excavate into the underlying rock formation to level the pad, excavate the reserve/blooie pit, construct the access road or bury the well tie pipeline there is a high potential to impact scientifically important fossil resources.

*Environmental Consequences of the No Action Alternative:* There would be no new impacts to fossil resources under the No Action Alternative.

*Mitigation*: 1. The operator is responsible for informing all persons who are associated with the project operations that they will be subject to prosecution for knowingly disturbing paleontological sites, or for collecting fossils. If fossil materials are uncovered during any project or construction activities, the operator is to immediately stop activities in the immediate area of the find that might further disturb such materials, and immediately contact the authorized officer (AO). Within five working days the AO will inform the operator as to:

- whether the materials appear to be of noteworthy scientific interest
- the mitigation measures the operator will likely have to undertake before the site can be used (assuming in situ preservation is not feasible)

If the operator wishes, at any time, to relocate activities to avoid the expense of mitigation and/or the delays associated with this process, the AO will assume responsibility for whatever recordation and stabilization of the exposed materials may be required. Otherwise, the operator will be responsible for mitigation cost. The AO will provide technical and procedural guidelines for the conduct of mitigation. Upon verification from the AO that the required mitigation has been completed, the operator will then be allowed to resume construction.

2. If for any reason it becomes necessary to excavate into the underlying rock formation to level the well pad, excavate the reserve/blooie pit, construct the access road or bury the well tie pipeline a paleontological monitor shall be present, prior to and during all such excavation.

## RANGELAND MANAGEMENT

*Affected Environment*: The proposed action occurs within the Dan Johnson use area of the Piceance Mountain allotment which is licensed for grazing use as follows:

| ALLOTMENT NUMBER | ALLOTMENT NAME | RANGE PERMIT NUMBER | LIVESTOCK | | DATES | | % PL | AUMS |
|---|---|---|---|---|---|---|---|---|
| | | | # | KIND | ON | OFF | | |
| 06023 | PICEANCE MOUNTAIN | 051421 | 580 | C | 05/01 | 06/20 | 59 | 574 |
| | | | 353 | C | 10/16 | 11/14 | 59 | 205 |
| | | | 177 | C | 11/15 | 01/30 | 59 | 264 |

*Environmental Consequences of the Proposed Action:* The proposed action will result in the long term loss of about 3 AUMs of livestock forage. If the integrity of the affected fences is not maintained, intra-allotment livestock trespass could occur. If airborne dust coats vegetation adjacent to roads, the usability of that vegetation for forage will be negatively impacted , which in combination with truck traffic and other such physical disturbance, could result in the long term loss of 10-20 AUMs of forage.

*Environmental Consequences of the No Action Alternative:* There will be no change from the present situation.

*Mitigation:* If construction/development occurs between April 15 and November 15, the operator will be required to water or surface access roads to reduce airborne dust and damage to roadside vegetation communities.

## REALTY AUTHORIZATIONS

*Affected Environment*: A right-of-way authorization will be required for off-lease portions of the access road on the Sprague Gulch Road.

*Environmental Consequences of the Proposed Action:* There are three active rights-of-way on the Sprague Gulch Road: COC67996 EnCana Oil & Gas, COC22065 an easement deed to the United States, and to the west of Sprague Gulch COC63475 is Exxon Mobil. This action would be an amendment to Exxon's existing right-of-way COC63475.

*Environmental Consequences of the No Action Alternative:* None

*Mitigation*: The Surface Plan and the Conditions of Approval for the APD will be adapted and accepted to the right-of-way amendment.

## RECREATION

*Affected Environment*: The proposed action occurs within the White River Extensive Recreation Management Area (ERMA). BLM custodially manages the ERMA to provide for unstructured recreation activities such as hunting, dispersed camping, hiking, horseback riding, wildlife viewing and off-highway vehicle use.

The project area has been delineated a Recreation Opportunity Spectrum (ROS) class of Semi-Primitive Motorized (SPM). SPM physical and social recreation setting is typically characterized by a natural appearing environment with few administrative controls, low interaction between users but evidence of other users may be present. SPM recreation experience is characterized by a high probability of isolation from the sights and sounds of humans that offers an environment that offers challenge and risk.

*Environmental Consequences of the Proposed Action:* The public will lose approximately 9 acres of dispersed recreation potential while wells are in operation. The public will most likely not recreate in the vicinity of these facilities and will be dispersed elsewhere. If action coincides with hunting seasons (September through November) it will most likely disrupt the experience sought by those recreationists.

With the introduction of new well pads and roads, an increase of traffic could be expected increasing the likihood of human interactions, the sights and sounds associated with the human environment and a less naturally appearing environment.

*Environmental Consequences of the No Action Alternative:* No loss of dispersed recreation potential and no impact to hunting recreationists.

*Mitigation*: None.

**VISUAL RESOURCES**

*Affected Environment*: The proposed action would be located in an area with a VRM III classification. The objective of this class is to partially retain the existing character of the landscape. The level of change to the characteristic landscape should be moderate. Management activities may attract attention but should not dominate the view of the casual observer. Changes should repeat the basic elements found in the predominant natural features of the characteristic landscape.

*Environmental Consequences of the Proposed Action:* The proposed action would be located near the top of a ridge partially in sagebrush with a back drop of stands of pinyon/juniper trees. The location would not be visible from Rio Blanco County road 5 (Piceance Creek Road) which would be the paved route most frequently traveled by a casual observer. A casual observer traveling on the Sprague Gulch dirt road would be able to view the proposed action for a short period of time. Most of the travelers on this dirt road would be service personnel for the oil/gas industry, a few ranchers, and hunters during the fall big game seasons. By painting all production facilities Juniper Green, the level of change to the characteristic landscape would be low and the objectives of the VRM III classification would be retained.

*Environmental Consequences of the No Action Alternative:* There would be no impacts.

*Mitigation*: Paint all production facilities Juniper Green (Munsell Soil Color Chart of Standard Environmental Colors) within 6 months of installation.

**CUMULATIVE IMPACTS SUMMARY:** Cumulative impacts from oil and gas development were analyzed in the White River Resource Area PRMP/FEIS. Current development, including the actions proposed in this EA, has not exceeded the foreseeable development analyzed in the PRMP/FEIS.

**REFERENCES CITED:**


Colorado Department of Public Health and Environment (CDPHE) Air Pollution Control Division (APCD), 2005. "Colorado Air Quality Data Report – 2004," September 2005.

CDPHE Water Quality Control Commission (WQCC), 2004a. Regulation No. 37 Classifications and Numeric Standards for Lower Colorado River Basin. Adopted 1983 and Effective January 20, 2004.

CDPHE-WQCC, 2004b. "Status of Water Quality in Colorado – 2004, The Update to the 2002 305(b) Report," April.

CDPHE-WQCC, 2004d. "Regulation No. 94, Colorado's Monitoring and Evaluation List," effective May 31.

Pool, Kelly J.
2006 Exxon Mobil Corporation's Proposed Liberty Unit 396-24A Wellpad, Access, and a Portion of the Pipeline: A Class III Cultural Resource Inventory in Rio Blanco County, Colorado. Metcalf Archaeological Consultants, Inc., Eagle, Colorado.

Topper, R., K.L. Spray, W.H. Bellis, J.L. Hamilton, and P.E. Barkmann. 2003. Groundwater Atlas of Colorado, Special Publication 53. Prepared for State of Colorado Department of Natural Resources, Division of Minerals and Geology. Colorado Geological Survey. Denver, Colorado.

Tweto, Ogden
1979 Geologic Map of Colorado. United States Geologic Survey, Department of the Interior, Reston, Virginia

USDI Bureau of Land Management, Colorado. 1997. White River Record of Decision and Approved Resource Management Plan (ROD/RMP). Meeker, Colorado.


**PERSONS / AGENCIES CONSULTED:** None

**INTERDISCIPLINARY REVIEW:**

| Name | Title | Area of Responsibility |
|---|---|---|
| Nate Dieterich | Hydrologist | Air Quality |
| Tamara Meagley | Natural Resource Specialist | Areas of Critical Environmental Concern |
| Tamara Meagley | Natural Resource Specialist | Threatened and Endangered Plant Species |
| Michael Selle | Archeologist | Cultural Resources<br>Paleontological Resources |
| Mark Hafkenschiel | Rangeland Management Specialist | Invasive, Non-Native Species, Vegetation, Rangeland Management |
| Ed Hollowed | Wildlife Biologist | Migratory Birds |
| Ed Hollowed | Wildlife Biologist | Threatened, Endangered and Sensitive Animal Species |
| Melissa Kindall | Hazmat Collateral | Wastes, Hazardous or Solid |
| Nate Dieterich | Hydrologist | Water Quality, Surface and Ground<br>Hydrology and Water Rights |
| Ed Hollowed | Wildlife Biologist | Wetlands and Riparian Zones |
| Chris Ham | Outdoor Recreation Planner | Wilderness |
| Nate Dieterich | Hydrologist | Soils |
| Ed Hollowed | Wildlife Biologist | Wildlife Terrestrial and Aquatic |
| Chris Ham | Outdoor Recreation Planner | Access and Transportation |
| Ken Holsinger | Natural Resource Specialist | Fire Management |
| Robert Fowler | Forester | Forest Management |
| Paul Daggett | Mining Engineer | Geology and Minerals |
| Penny Brown | Realty Specialist | Realty Authorizations |
| Chris Ham | Outdoor Recreation Planner | Recreation |
| Keith Whitaker | Natural Resource Specialist | Visual Resources |
| Valarie Dobrich | Natural Resource Specialist | Wild Horses |

# Finding of No Significant Impact/Decision Record (FONSI/DR)

# CO-110-2006-058-EA

**FINDING OF NO SIGNIFICANT IMPACT (FONSI)/RATIONALE:** The environmental assessment and analyzing the environmental effects of the proposed action have been reviewed. The approved mitigation measures (listed below) result in a Finding of No Significant Impact on the human environment. Therefore, an environmental impact statement is not necessary to further analyze the environmental effects of the proposed action.

**DECISION/RATIONALE**: : It is my decision to approve the APD for well # Liberty Unit 396-24A1, as proposed, for the well pad, access road and pipeline route with the mitigation listed below. The proposed action is in conformance with all applicable decisions in the White River ROD/RMP, and would not be expected to result in unnecessary or undue degradation of the public lands or resources.

**MITIGATION MEASURES**: 1. The operator will be responsible for complying with all local, state, and federal air quality regulations as well as providing documentation to the BLM that they have done so. To minimize production of fugitive particulate matter (fugitive dust), vehicle speeds must not exceed 15 mph *or* dust plume must not be visible at appropriate designated speeds for road design. In addition, the application of a BLM approved dust suppressant (e.g. water or chemical stabilization methods) will be required during dry periods when dust plumes are visible at speeds less than or equal to 15 mph. Surfacing the roadway with gravels will also help mitigate production of fugitive particulate matter.

2. To reduce production of fugitive particulate matter originating from well pads and associated stockpiled soils (long term storage) interim reclamation will be required. Interim reclamation will consist of excess stockpiled soils associated with pad construction being pulled back over the portion of the well pad not being utilized for production facilities and access. Portions of the well pad undergoing interim reclamation will be returned to grade (as close as possible), promptly re-seeded, and biodegradable fabrics will be utilized on slopes exceeding 5% (e.g. fill slopes). If interim reclamation is not practical (e.g. completion of drilling operation will require an extended period time (multiple well pads)), stockpiled topsoil will be covered with biodegradable fabrics such as (but not limited to) jute netting and seeded with a BLM approved seed mixture (see vegetation section of this document). Furthermore, soils stockpiled for short durations (e.g. during road/pipeline construction/maintenance) will be wetted during dry periods to reduce production of fugitive particulate matter.

3. The operator is responsible for informing all persons who are associated with the project operations that they will be subject to prosecution for knowingly disturbing historic or

archaeological sites, or for collecting artifacts. If historic or archaeological materials are uncovered during any project or construction activities, the operator is to immediately stop activities in the immediate area of the find that might further disturb such materials, and immediately contact the authorized officer (AO). Within five working days the AO will inform the operator as to:

- whether the materials appear eligible for the National Register of Historic Places
- the mitigation measures the operator will likely have to undertake before the site can be used (assuming in situ preservation is not necessary)
- a timeframe for the AO to complete an expedited review under 36 CFR 800-11 to confirm, through the State Historic Preservation Officer, that the findings of the AO are correct and that mitigation is appropriate.

If the operator wishes, at any time, to relocate activities to avoid the expense of mitigation and/or the delays associated with this process, the AO will assume responsibility for whatever recordation and stabilization of the exposed materials may be required. Otherwise, the operator will be responsible for mitigation cost. The AO will provide technical and procedural guidelines for the conduct of mitigation. Upon verification from the AO that the required mitigation has been completed, the operator will then be allowed to resume construction.

4. Pursuant to 43 CFR 10.4(g) the holder of this authorization must notify the AO, by telephone, with written confirmation, immediately upon the discovery of human remains, funerary items, sacred objects, or objects of cultural patrimony. Further, pursuant to 43 CFR 10.4(c) and (d), you must stop activities in the vicinity of the discovery and protect it for 30 days or until notified to proceed by the authorized officer.

5. Prior to commencement of access road construction, the flagged road right of way should be spot pretreated (sprayed) to kill any spotted knapweed that is growing within the right of way

6. The operator will be required to monitor the project area for a minimum of three years post disturbance and eradicate all noxious and invasive species which occur on site using materials and methods approved in advance by the Authorized Officer.

7. The operator shall prevent use by migratory birds of reserve pits that store or are expected to store fluids which may pose a risk to such birds (e.g., migratory waterfowl, shorebirds, wading birds and raptors) during completion and after completion activities have ceased. Methods may include netting, the use of bird-balls, or other alternative methods that effectively prevent use and that meet BLM approval. It will be the responsibility of the operator to notify the BLM of the method that will be used to prevent use two weeks prior to when completion activities are expected to begin. The BLM approved method will be applied within 24 hours after completion activities have begun. All lethal and non-lethal events that involve migratory birds will be reported to the Petroleum Engineer Technician immediately.

8. The applicant shall be required to collect and properly dispose of any solid wastes generated by the proposed actions.

9. The operator will be responsible for complying with all local, state, and federal water quality regulations (such as but not limited to Phase I Storm Water Permit, and Industrial Wastewater/Produced Water Permits). The operator will also be required to provide the BLM with documentation that all required permits were obtained.

10. Surface Water: All surface disturbing activities will strictly adhere to "Gold Book" fourth edition surface operating standards for oil and gas exploration and development (copies of the "Gold Book" fourth edition can be obtained at the WRFO). Oil and gas development activities require a stormwater discharge permit from the Colorado Department of Public Health and Environment, Water Quality Control Division, for construction associated with well pads, pipelines, roads and other facilities. As a condition of the permit, a Stormwater Management Plan (SWMP) would be developed showing how Best Management Practices (BMPs) are to be used to control runoff and sediment transport. The applicant is required to have a copy of the SWMP on file with the Meeker Field Office and to implement the BMPs in that plan as on-site conditions warrant.

11. The White River Record of Decision and Approved Resource Management Plan (July, 1997) includes a list of standard Conditions of Approval to be applied to All Surface Disturbing Activities (COAs 1-12) and to Road Construction and Maintenance (COAs 13-62). The applicant is required to be familiar with those standard COAs and to implement them as on-site conditions warrant. Furthermore, to mitigate additional soil erosion at the well pad, interim reclamation will be required as outlined in the Air Quality mitigation section above.

12. Due to the potential cumulative impacts resulting from future development on the Roan Plateau (more than 20 well pads), construction of a prefabricated bridge (designed to withstand a 50 year flood event) with concrete abutments (nearly identical to the structure built over Piceance Creek on BLM # 1002) will be required for future development when the 20 well pad threshold for the existing low water crossing on the Sprague Gulch Road is reached. The use of a bridge will mitigate potential contamination to surface waters due to leaks or spills as well as mitigate severe deterioration of the stream bank/channel at the Piceance Creek crossing. Bridge construction will take place only during low flow periods in attempts to minimize suspended sediment loads in Piceance Creek. It will be the responsibility of Exxon Mobil Corporation to come to an agreement with EnCana Oil & Gas (USA) Inc. (and any other companies using this access) to fund the construction of the required prefabricated bridge.

13. If mechanical evaporation is necessary to dispose of pit fluids, the operator will be required to conduct soil samples prior to, during after the evaporation process to evaluate potential increases salt concentrations in soils. In addition, vegetation will be monitored on a daily basis within a 200 foot radius of the evaporation system to assess potential impacts overspray may have on vegetation. In the event that overspray is adversely impacting vegetation and increasing soil salt concentrations, all mechanical means of evaporation will be shut down and the operator will consult with the BLM to ensure adequate cleanup. Furthermore, all soil and vegetative data will be provided to the BLM in a timely manner.

14. Ground Water: Shallow aquifers shall be protected from hydrofracturing and the production of oil and gas by installation and cementing of surface and intermediate casing. Any

groundwater produced from the Fort Union or Mesaverde Formations will be hauled off and disposed of due to poor water quality and therefore preventing adverse impacts to valuable surface and ground water resources. Environmentally unfriendly substances (e.g. diesel) must not be allowed to contact soils. The use of spill-guards (or equivalent spill prevention equipment) under and around pumping equipment is suggested to intercept such contaminants prior to infiltrating soils and contaminating ground water. Furthermore, all pits shall be lined and all wastes associated with construction and drilling will be properly treated and disposed of. To assess water quality impacts resulting from energy development, the BLM will monitor water quality and flow rates in perennial springs 171-14 and 171-15 before and after drilling.

15. Comply with "Gold Book" fourth edition surface operating standards for constructing well pad, pipeline and access road (copies of the "Gold Book" fourth edition can be obtained at the WRFO). Interim reclamation will be required as addressed in the Air and Water Quality portions of this document. To mitigate contamination of soils and local ground water, environmentally unfriendly substances (e.g. diesel) must not be allowed to contact soils. The use of impermeable matting under equipment (tanks, pumps, or other equipment used in handling hazardous liquids) is suggested to intercept such contaminants prior to contacting soils. Complete reclamation will follow abandonment of well pad. Access road and well pad will be recontoured and 100% of disturbed surfaces will be revegetated with the suggested seed mixture as outlined in the vegetation section of this document.

16. Promptly revegetate all disturbed areas not necessary for production including pad and access road cut and fill slopes with Native Seed mix #2. Seed mixture rates are Pure Live Seed (PLS) pounds per acre. Drill seeding is the preferred method of application. If seed is broadcast, the application rate will be doubled.

| NATIVE SEED MIX #2 | | |
|---|---|---|
| Western wheatgrass (Rosanna) | 2 | Deep Loam, Loamy 10"-14", |
| Indian ricegrass (Nezpar) | 1 | Loamy Breaks, Loamy Slopes, |
| Bluebunch wheatgrass (Whitmar) | 2 | Rolling Loam, Valley Bench |
| Thickspike wheatgrass (Critana) | 2 | |
| Green needlegrass (Lodorm) | 1 | |
| Globemallow | 0.5 | |

17. The use of interim reclamation techniques will be used to the extent practicable on this pad such that: 1) all available topsoil material would be used to rehabilitate recontoured cut and fill slopes and areas outside the anchors (maintaining the viability of the soils for final reclamation), 2) production facilities are located to maximize the extent of surface disturbance available for recontouring and reclamation after completion operations and through the productive life of the well (e.g., where access road enters pad), and 3) disturbed areas are recontoured, revegetated, and, if necessary, effectively fenced to control livestock use once well completion activities have been finalized (this includes cut and fill slopes of roads and trial application on the roadbeds themselves).

18. As a means of reducing long-term impacts to the utility of local deer and elk winter ranges and meeting road density objectives established in the White River ROD/RMP (i.e., road densities of 3 miles/square mile on big game ranges, White River ROD/RMP, page 2-29), any

extension of impacts associated with vehicular traffic and road density from this location should be countered with a gating requirement to strictly and effectively limit year-round vehicular traffic to that associated with well development and maintenance and BLM administration only.

19. The operator has two options for treatment of slash from this project. A hydro-ax or other mulching type machine could be used to remove the trees. The machines are capable of shredding trees up to 12" in diameter and 15' tall as well as mowing brush like a conventional brush beater. It generally leaves small branches and pieces of wood from pencil size up to bowling ball size. The mulch is evenly scattered across the surface and effectively breaks down the woody fuel thereby eliminating any hazardous fuel load adjacent to the new road and well pad. The other option would be to cut trees and have them removed for firewood, posts, or other products. The branches and tops should be lopped and scattered to a depth of 24 inches or less. If the boles of the trees are left for collection by the general public, they should be stacked in small manageable piles along the roadside or pad to facilitate removal. For material brought back onto the pipeline r-o-w the material should be evenly scattered, so as to not create jackpots, and the material should not exceed 5 tons /acre.

20. The operator is responsible for informing all persons who are associated with the project operations that they will be subject to prosecution for knowingly disturbing paleontological sites, or for collecting fossils. If fossil materials are uncovered during any project or construction activities, the operator is to immediately stop activities in the immediate area of the find that might further disturb such materials, and immediately contact the authorized officer (AO). Within five working days the AO will inform the operator as to:

- whether the materials appear to be of noteworthy scientific interest
- the mitigation measures the operator will likely have to undertake before the site can be used (assuming in situ preservation is not feasible)

If the operator wishes, at any time, to relocate activities to avoid the expense of mitigation and/or the delays associated with this process, the AO will assume responsibility for whatever recordation and stabilization of the exposed materials may be required. Otherwise, the operator will be responsible for mitigation cost. The AO will provide technical and procedural guidelines for the conduct of mitigation. Upon verification from the AO that the required mitigation has been completed, the operator will then be allowed to resume construction.

21. If for any reason it becomes necessary to excavate into the underlying rock formation to level the well pad, excavate the reserve/blooie pit, construct the access road or bury the well tie pipeline a paleontological monitor shall be present, prior to and during all such excavation.

22. If construction/development occurs between April 15 and November 15, the operator will be required to water or surface access roads to reduce airborne dust and damage to roadside vegetation communities.

23. The Surface Plan and the Conditions of Approval for the APD will be adapted and accepted to the right-of-way amendment.

24. Paint all production facilities Juniper Green (Munsell Soil Color Chart of Standard Environmental Colors) within 6 months of installation.

**NAME OF PREPARER**: Keith Whitaker

**NAME OF ENVIRONMENTAL COORDINATOR**: Caroline P. Hollowed

**SIGNATURE OF AUTHORIZED OFFICIAL**: _____
Field Manager

**DATE SIGNED**: 4/11/06

**ATTACHMENTS**: General location map of the Proposed Action



CO-110-2006-058-EA 32

# Location Map of the Proposed Action
# CO-110-2006-058-EA